

1 What is claimed is:

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3 1. A method of treating a molecular sieve containing a structure directing
4 agent, the method comprising the steps of:

5 A. heating the structure directing agent-containing molecular sieve
6 to a temperature and for a time sufficient to remove the structure
7 directing agent from the molecular sieve; and

8 B. heating the molecular sieve from step A in an aqueous, acidic
9 medium.

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11 2. The method of claim 1 wherein the heating in step A is calcination.

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13 3. The method of claim 1 wherein the aqueous, acidic medium is an
14 aqueous solution of an organic acid or a mineral acid.

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16 4. The method of claim 3 wherein the aqueous, acidic medium is an
17 aqueous solution of acetic acid, propionic acid or oxalic acid.

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19 5. The method of claim 4 wherein the aqueous, acid medium is an
20 aqueous solution of acetic acid.

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22 6. The method of claim 3 wherein the aqueous, acid medium is an
23 aqueous solution of hydrochloric acid, nitric acid, sulfuric acid or
24 phosphoric acid.

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26 7. The method of claim 6 wherein the aqueous, acid medium is an
27 aqueous solution of hydrochloric acid.

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29 8. The method of claim 1 wherein the aqueous, acid medium has a pH
30 below the isoelectric point of silica.

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32 9. The method of claim 8 wherein the aqueous, acid medium has a pH of
33 greater than 0 to about 2.5.

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- 1 10. The method of claim 1 wherein the aqueous, acid medium in step B is
2 heated at a temperature of about 135°C.
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- 4 11. The method of claim 1 wherein the aqueous, acid medium in step B is
5 heated at a temperature of about 160°C to about 185°C.
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- 7 12. The method of claim 1 wherein the molecular sieve is a zeolite.
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- 9 13. The method of claim 12 wherein the zeolite has the CON, MWW, MFI
10 or *BEA crystal topology.
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- 12 14. The method of claim 12 wherein the zeolite contains silicon.
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- 14 15. The method of claim 12 wherein the zeolite contains silicon and
15 aluminum.
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- 17 16. A method of increasing the hydrophobicity of a molecular sieve
18 containing a structure directing agent, the method comprising the steps
19 of:
20 A. heating the structure directing agent-containing molecular sieve
21 to a temperature and for a time sufficient to remove the structure
22 directing agent from the molecular sieve; and
23 B. heating the molecular sieve from step A in an aqueous, acidic
24 medium
25 wherein the molecular sieve from step B is more hydrophobic
26 than the molecular sieve used in step A.
27
- 28 17. The method of claim 16 wherein the heating in step A is calcination.
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- 30 18. The method of claim 16 wherein the aqueous, acidic medium is an
31 aqueous solution of an organic acid or a mineral acid.
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- 1 19. The method of claim 18 wherein the aqueous, acidic medium is an
2 aqueous solution of acetic acid, propionic acid or oxalic acid.
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- 4 20. The method of claim 19 wherein the aqueous, acid medium is an
5 aqueous solution of acetic acid.
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- 7 21. The method of claim 18 wherein the aqueous, acid medium is an
8 aqueous solution of hydrochloric acid, nitric acid, sulfuric acid or
9 phosphoric acid.
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- 11 22. The method of claim 21 wherein the aqueous, acid medium is an
12 aqueous solution of hydrochloric acid.
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- 14 23. The method of claim 16 wherein the aqueous, acid medium has a pH
15 below the isoelectric point of silica.
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- 17 24. The method of claim 23 wherein the aqueous, acid medium has a pH
18 of greater than 0 to about 2.5.
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- 20 25. The method of claim 16 wherein the aqueous, acid medium in step B is
21 heated at a temperature of about 135°C.
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- 23 26. The method of claim 16 wherein the aqueous, acid medium in step B is
24 heated at a temperature of about 160°C to about 185°C.
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- 26 27. The method of claim 16 wherein the molecular sieve is a zeolite.
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- 28 28. The method of claim 27 wherein the zeolite has the CON, MWW, MFI
29 or *BEA crystal topology.
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- 31 29. The method of claim 27 wherein the zeolite contains silicon.
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- 1 30. The method of claim 27 wherein the zeolite contains silicon and
2 aluminum.
3
- 4 31. A molecular sieve produced by the process comprising the steps of:
5 A. heating a structure directing agent-containing molecular sieve to
6 a temperature and for a time sufficient to remove the structure
7 directing agent from the molecular sieve; and
8 B. heating the molecular sieve from step A in an aqueous, acidic
9 medium.
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- 11 32. The molecular sieve of claim 31 wherein the heating in step A is
12 calcination.
13
- 14 33. The molecular sieve of claim 31 wherein the aqueous, acidic medium is
15 an aqueous solution of an organic acid or a mineral acid.
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- 17 34. The molecular sieve of claim 33 wherein the aqueous, acidic medium is
18 an aqueous solution of acetic acid, propionic acid or oxalic acid.
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- 20 35. The molecular sieve of claim 34 wherein the aqueous, acid medium is
21 an aqueous solution of acetic acid.
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- 23 36. The molecular sieve of claim 33 wherein the aqueous, acid medium is
24 an aqueous solution of hydrochloric acid, nitric acid, sulfuric acid or
25 phosphoric acid.
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- 27 37. The molecular sieve of claim 36 wherein the aqueous, acid medium is
28 an aqueous solution of hydrochloric acid.
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- 30 38. The molecular sieve of claim 31 wherein the aqueous, acid medium
31 has a pH below the isoelectric point of silica.
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- 33 39. The molecular sieve of claim 38 wherein the aqueous, acid medium
34 has a pH of greater than 0 to about 2.5.

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- 2 40. The molecular sieve of claim 31 wherein the aqueous, acid medium in
- 3 step B is heated at a temperature of about 135°C.
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- 5 41. The molecular sieve of claim 31 wherein the aqueous, acid medium in
- 6 step B is heated at a temperature of about 160°C to about 185°C.
- 7
- 8 42. The molecular sieve of claim 31 wherein the molecular sieve is a
- 9 zeolite.
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- 11 43. The molecular sieve of claim 42 wherein the zeolite has the CON,
- 12 MWW, MFI or *BEA crystal topology.
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- 14 44. The molecular sieve of claim 42 wherein the zeolite contains silicon.
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- 16 45. The molecular sieve of claim 42 wherein the zeolite contains silicon
- 17 and aluminum.
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- 19 46. An all-silica molecular sieve having the CON crystal topology.